

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended). A device to synthesize a range of frequencies F1-F2 frequency  $F1 \rightarrow F2$  with high spectral purity, comprising:

a synthesizer with a variable step range of frequencies F3-F4  $F3 \rightarrow F4$ , having a ~~comprising at least one~~ variable rank divider Nb located after said synthesizer; and

a frequency control device delivering ~~a the~~ division rank command of the variable rank divider, ~~a the~~ command of the frequency of the variable-step synthesizer, and a the command of ~~a the~~ synthesis step of the variable-step synthesizer,

wherein the variable-step synthesizer is a fractional step phase-locked loop synthesizer.

2. (previously presented). The device according to claim 1 comprising a filtering device positioned after the variable-rank device Nb.

Claim 3 (cancelled).

4. (currently amended). The device according to claim 1 wherein the variable-rank divider Nb is a value from ~~takes the values~~ N1 to Np, the these values N1 to Np follow ~~following~~ an arithmetic progression, and wherein the maximum frequency of the synthesizer is given by  $F4 = N1 * F2$  where N1 is the smallest value of the sequence of values N1 to Np and the frequency F3 is a function of N2.

5. (previously presented). The device according to claim 4 wherein the value of the frequency F3 is substantially equal to or slightly lower than  $(N1/N2) * F4$ .

6. (currently amended). The device according to claim 1 wherein the variable-rank divider Nb is a value from ~~takes the values~~ N1 to Np, the these values N1 to Np following a non-arithmetic progression.

7. (currently amended). The device according to claim 6 wherein F3 is substantially equal to or smaller than a F4 where a is the smallest value obtained in dividing two consecutive values ~~elements~~ one after the other.

8. (previously presented). The device according to claim 6 wherein the highest division rank Nb is chosen.

9. (currently amended). The device according to claim 1 comprising a mixer receiving an ~~the~~ output signal from a ~~the~~ fractional step synthesizer and a mixing signal.

10. (currently amended). A ~~The~~ method of synthesizing ~~to synthesize~~ a range of frequencies F1-F2 ~~frequency F1→F2~~ with high spectral purity using a variable-step range of frequencies F3-F4 synthesizer F3→F4, comprising:

~~at least one step in which~~ transmitting the output signal of the variable-step synthesizer is ~~transmitted~~ to a multiple-rank divider Nb ~~[[Np]]~~, and;

~~wherein~~ modifying a the division rank, a ~~the~~ synthesis step of the synthesizer and a ~~the~~ frequency of the variable-step synthesizer ~~are modified~~ responsive to receipt of the output signal.

11. (previously presented). The method according to claim 10 wherein the values Nb vary according to an arithmetic sequence N1...Np and wherein the frequency F4 is determined by  $N1 \cdot F2$  and the frequency F3 is a function of N2.

12. (previously presented). The method according to claim 11 wherein the value of the frequency F3 is chosen to be substantially equal to or slightly below  $(N1/N2) \cdot F4$ .

13. (currently amended). The method according to claim 10 wherein the value ~~values~~ Nb varies ~~vary~~ according to a non-arithmetic sequence and wherein two consecutive values of the

sequence are divided.

14. (currently amended). The method according to claim 13 wherein  $F3$  is substantially equal to or smaller than a  $F4$  where  $a$  is the smallest value obtained in dividing two consecutive values ~~elements~~ of the sequence.

15. (previously presented). The method according to claim 14 wherein the highest division rank  $Nb$  is chosen.

16. (currently amended). The method according to claim 10, wherein the modification of ~~the commands of the~~ division rank divider and the synthesis step ~~variable-step synthesizer~~ is simultaneous.

17. (currently amended). The method according to claim 1, ~~one of the above claims~~ wherein a ~~the~~ ratio of a ~~the~~ reference frequency to the frequency step, is a least common multiple  ~~$F_{ref}/\Delta F$ , is the LCM of the sequence  $N1...Np$ .~~